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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/989,273	11/20/2001	William Robert Hanson	035451-0145 (3682.Palm)	9592
26371	7590	11/03/2003	EXAMINER	
FOLEY & LARDNER 777 EAST WISCONSIN AVENUE SUITE 3800 MILWAUKEE, WI 53202-5308			SAWHNEY, HARGOBIND S	
			ART UNIT	PAPER NUMBER
			2875	

DATE MAILED: 11/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/989,273

Applicant(s)

HANSON ET AL

Examiner

Hargobind S Sawhney

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 January 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4, 6-19, 22 and 24-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-19, 22 and 24-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

1. The amendment filed on June 30, 2003 has been entered. Accordingly, claims 1-4,10,12,13 and 17-19 have been amended.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-4, 6-9, 17-19, 22 and 24-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen (U.S. Patent No. 5,982,092) in view of Baur et al. (U.S. Patent No. 4,142,781) and Umemoto et al. (U.S. Patent No. 6,366,409 B1).

Regarding claims 1, 2 and 6-9, Chen ('092) discloses a lighting system for a display (Figure 3) comprising:

- a light source system including a light source 40 providing light having wavelength in a spectrum not visible to the human eyes (Figure 3, column 1, lines 10-14, and column 3, lines 10-14), and the light spectrum including infrared (IR) light;

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- a reflective layer 50- herewith also considered as a light converter having a fluorescent surface reflecting the invisible light from the light source 40, and converting the invisible light into light visible to human eyes (Figure 3, column 3, lines 5-7 and 11-20);
- the light source system further including a light guide 10 (Chen, Figure 3, column 2, line 54).
- the light source 40 including a light emitting diode (LED) 40 (Figure 3, column 3, lines 11-13);
- the light emitting diode 40 emitting ultraviolet light (Figure 3, column 1, lines 9-12, and column 3, lines 34-38); and
- the light source 40 being located below the display layer opposite the side of the display layer viewed by the human eye (Figure 1, abstract, lined 8 and 9, and column 1, lines 17-19).

However, regarding claims 1 and 6, Chen ('092) discloses a reflective layer having a fluorescent coating instead of a reflective layer having a phosphorescent coating in a substrate as claimed by the applicant.

On the other hand, Baur et al. ('781) discloses an electro-optical display device (Figure 9) comprising a fluorescent plate 1a, and an additional a layer 25 containing phosphorescent particles (Figure 9, column 9, lines 5-10). Baur et al. ('781) further teaches the phosphorescent particles embedded in the layer metallic coating (Column 8, lines 17-20).

It would be have been obvious to one of ordinary skill in the art at the time of the invention to modify the lighting system of Chen ('092) by providing the layer containing phosphorescent particles as taught by Baur et al. ('781) for the benefits and advantages of providing afterglow of the display after the device in switched-off.

Further, regarding Claim 1, Chen ('092) teaches the disclosed light source useable for a liquid crystal display (LCD) (Figure 1 and abstract). However, Chan does not disclose specific features of the LCD.

On the other hand, Umemoto et al. ('409 B1) discloses a planer light source 11 (Figures 3 and 4) with a display layer 3 (Figure 3, column 15, lines 5-7) inherently having its pixels altered with an application of electric charge.

It would be have been obvious to one of ordinary skill in the art at the time of the invention to combine lighting system of Chen ('092) in view of Baur et al. ('781) with the display layer - LCD- and it positioning as taught by Umemoto for the benefits and advantage of providing a display system with a lighting system having long operational life, energy efficiency and steady illumination.

Regarding claims 3 and 4, Chen ('092) teaches the disclosed a light source 40 providing light having wavelength in a spectrum not visible to the human eyes (Figure 3, column 1, lines 10-14, and column 3, lines 10-14), and the light spectrum including infrared (IR) light;

a light source 40 providing light having wavelength in a spectrum not visible to the human eyes (Figure 3, column 1, lines 10-14, and column 3, lines 10-14), and the light spectrum including infrared (IR) light;

Regarding claims 17-19, 22 and 24-27, Chen ('092) in view of Umemoto et al. ('409 B1) and Baur et al. ('781) discloses a display system meeting the limitations of the claims in the same manner as that for meeting the limitations of claims 1-4, 8 and 9 detailed above.

However, regarding the amended claims 17 and 19, Chen ('092) teaches the disclosed light source useable for a liquid crystal display (LCD) (Figure 1 and abstract, column 1, lines 17-19). Broad interpretation of the above teaching indicates that the lighting system disclosed by Chen ('092) is equally adequate for transmissive or tranflective LCDs including rigid or flexible display layers well known in the art.

Thus, regarding the amended claims 17 and 19, it would be have been obvious to one of ordinary skill in the art at the time of the invention to apply teaching Chen ('092) in view of Baur et al. ('781) and Umemoto for a flexible display layer.

4. Claims 10-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen (U.S. Patent No. 5,982,092) in view of Umemoto et al. (U.S. Patent No. 6,366,409 B1).

Regarding claims 10, 11, 13, 14 and 15 Chen ('092) in view of Umemoto et al. ('409 B1) obviously meets the method limitations with the following teaching:

Chen ('092) discloses a lighting system comprising:

- a light source 40 (LED) emitting light invisible to the human eyes, and the emitted light including IR spectrum not visible to human eyes;
- a reflective layer 50 having a fluorescent surface reflecting the IR portion of the invisible light, and converting it to the light visible to the human eye;

- the reflective layer 50 inherently having a metallized surface; and the light source LED 40 providing IR light; and
- the light source 40 being located below the display layer opposite the side of the display layer viewed by the human eye (Figure 1, abstract, lined 8 and 9, and column 1, lines 17-19).

In addition, Umemoto et al. ('409 B1) discloses a liquid crystal display (LCD) 3 with display layer inherently having its pixels.

Regarding Claim 12, Chen ('092) teaches the disclosed light source useable for a liquid crystal display (LCD) (Figure 1 and abstract, column 1, lines 17-19). Broad interpretation of the above teaching indicates that the lighting system disclosed by Chen ('092) is equally adequate for transmissive or tranflective LCDs including rigid or flexible display layers well known in the art.

Thus, regarding the amended Claim 12, it would be have been obvious to one of ordinary skill in the art at the time of the invention to apply teaching Chen ('092) in view of Baur et al. ('781) and Umemoto for a flexible display layer.

Regarding Claim 16, neither in combination nor individually Chen ('092) in view of Umemoto et al. ('409 B1) teaches the display element being an electronic paper(e-paper) display element.

It has been held that a recitation with respect to the manner in which a claim apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitation.

Thus, regarding claims 10-16, it would have been obvious to one of ordinary skill in the art at the time of the invention to make use of the teachings Chen, Baur and Umemoto for meeting the method limitations of the claims.

Response to Amendment

5. Applicant's arguments filed on June 30, 2003 with respect to the 35 U.S.C. 103(a) rejections of claims 1, 10 and 17 have been fully considered but they are not persuasive.

Argument: Regarding the amended Claim 1, neither combined nor individual teaching of Chen ('092), Umemoto et al. ('409 B1) and Baur et al. ('781) disclose positioning of the light source relative to the display layer and human viewer.

Response: Chen (U.S. Patent No. 5,982,092) discloses an LED planer light source, and further the planer light source usable as a back light source for a LCD (Figure 1, abstract, lines 7-9 and column 1, lines 18-20).

Argument: Regarding the amended Claim 10, neither combined nor individual teaching of Chen ('092), Umemoto et al. ('409 B1) and Baur et al.

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('781) discloses the light source being use of a flexible display panel with invisible light converting system.

Response: The amended Claim 10 recites generating a source of infrared light. Chen (U.S. Patent No. 5,982,092) discloses an LED planer light source emitting invisible light which includes infrared light and ultraviolet light. In addition, use of infrared light source as a back light for a display element is well known in the art including Rekimoto et al. (US Patent Application Pub. No.: 2001/00112001 A1, abstract) and Sakaguchi (Japanese Patent No.: 408194187A).

Argument: Regarding the amended Claim 17, neither combined nor individual teaching of Chen ('092), Umemoto et al. ('409 B1) and Baur et al. ('781) discloses the use of a flexible display panel with invisible light converting system.

Response: Chen (U.S. Patent No. 5,982,092) discloses an LED planer light source, and further the planer light source usable as a back light source for a LCD (Figure 1, abstract, lines 7-9 and column 1, lines 18-20).

Broad interpretation of the above teaching indicates that the light disclosed by Chen ('092) is equally adequate for transmissive or tranflective LCDs including rigid or flexible display layers well known in the art.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hargobind S Sawhney whose telephone number is 703-306-5909. The examiner can normally be reached on 6:15 - 2:45.

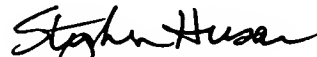
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra O'Shea can be reached on 703-305-4939. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9306/7724 for regular communications and 703-872-9319 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-2956.

HSS

10/28/2003


Stephen Husar
Primary Examiner